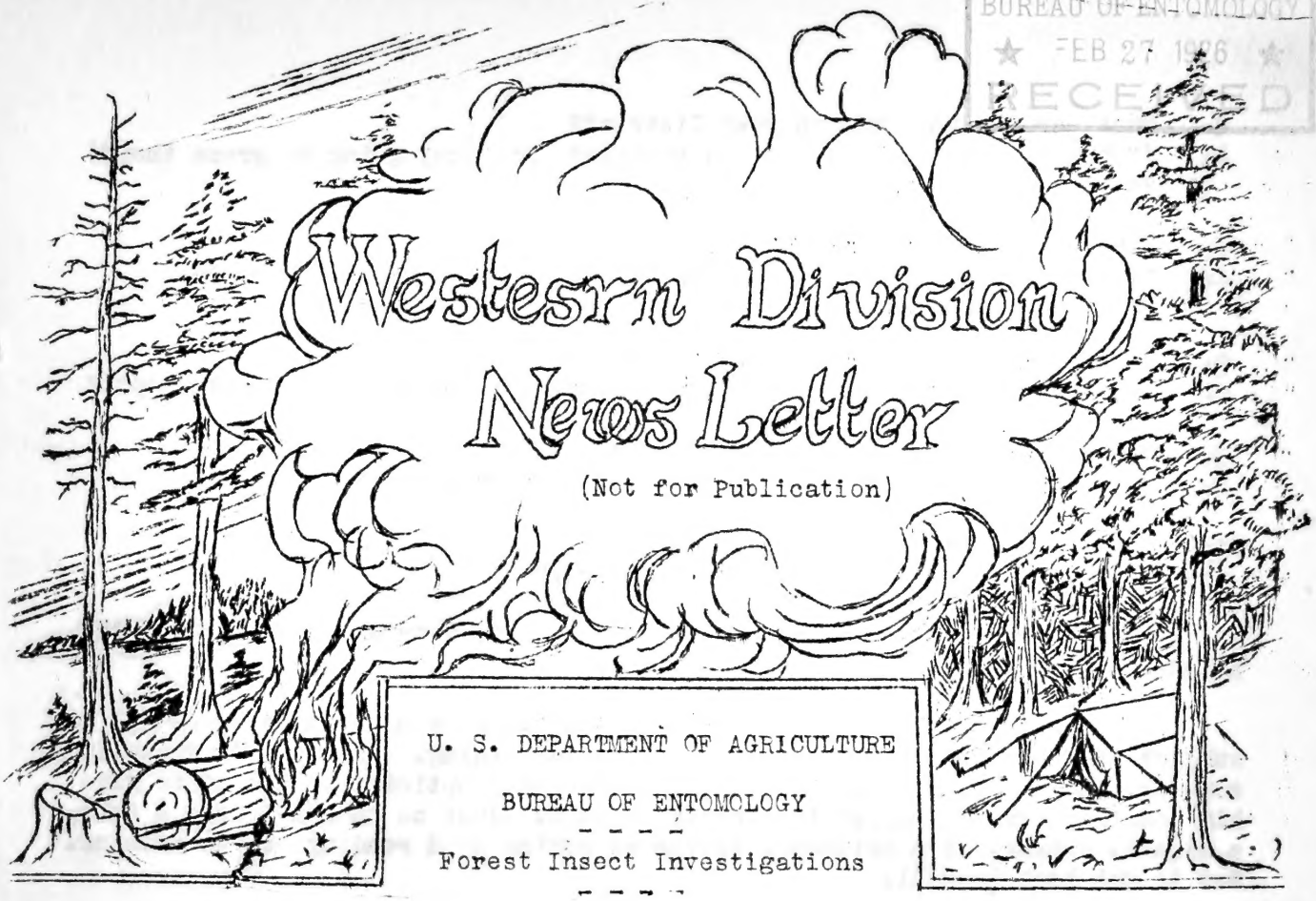
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



P. O. Box 3010, Stanford University, Calif. - February 1, 1926

WHY PICK ON THE RANGER?

By
F.P.Keen

One reason why some Rangers do not like to write "bug" reports is that they do not understand their subject, Another reason is that they feel pretty sure that nothing will ever come of it even if they do present some "alarming" situation.

The general principles behind these two reasons apply to most of us. We hate things we do not understand and we take no interest in things which fail to arouse any response to our efforts,

About once a year, each Ranger receives a little questionaire from the D,O, "Have you got bugs on your District?" it asks in part. "Damfino" replies Bill Ranger, taking accurate aim at the stove door. (They are always named Bill in a story of this kind), But the questionaire, insulted at the language and tone of Bill's voice, refuses to enlighten him, So Bill, with a sneaking suspicion that the bugman is at the bottom of all this, keeps the rest of his feelings to himself, sits down with his proverbial stub pencil and starts to fill in the blank spaces with something which will sound reasonable at least, "It's just something for those clerks in Washington to keep busy with so as to fool the Budget Bureau, anyway, So here goes!"

Q. What acreage have you on your District?
A. ("What has that got to do with beetles? Are they going to graze them?) The range is overstocked already.

Q. "Are beetles attacking your trees?"
A. "Yes, there must be a blister beetle from the razzberry, that is causing the serious discoloration of pine needles hereabouts."

Q. "How many trees are killed per section?"
A. "Oh, not so many except where the porcupines are chewing off the tops."

Q. "Are they increasing or decreasing?"
A. (Suspecting beetles are related to rabbits) "Increasing."

Q. "Do you recommend control?"
A. "Yes, Mrs. Sanger is doing a noble work."

So with a sigh of relief he slips it into a franked envelope, mails it and forgets about bugs for another year.

Can you blame him? I certainly can't. Knowing no more about the subject than he does, I would have done the same thing. In fact I'm doing it now, as the editor of this sheet had the unabashed optimism to ask me to give him something "real snappy" for the front page. Just as though I were a Cobb, a Nina W. Putnum, or a Brisbane, clever at making good reading out of nothing. But to get back to Bill.

We have failed to give Bill the necessary working knowledge of forest insects. When Bill writes for literature, we tell him that all available knowledge on the subject is contained in bull. umpty three which is now twenty years out of print and can only be found in libraries where they hire a night watchman. We have failed to reach him directly by interesting him in bugs and what bugs can and are doing to the forests. In nearly every case where a Ranger has received some first hand instruction in detecting beetle work, he writes a good report about the conditions on his District and not only "gets by" but furnishes the man who must summarize the reports something tangible to work with.

Therefore, lesson number one is for the entomologist to get busy and bring the recent knowledge within reach of the rest of the forest workers. (I started to say "field force" but it isn't the only place where educational work is needed.)

And lesson number two is for us to come to some definite policy about insect damage in the forest. Are we going to get action for Bill Ranger when he does report an "alarming situation" or are the reports simply to be used as Bill surmises they are used. If the policy has already been established that nothing is to be done about insect losses anyway, unless some irate owners press the matter, why try to salve the old conscience by getting reports from the field and then calling it a day. Wouldn't it be better to be frank about it and say "Bug losses mean nothing in our young lives. Let's forget about them and give Bill Ranger a much needed rest"?

STUDIES ON THE SOUTHERN PINE BEETLE DURING THE SEASON OF 1925

By
F. C. Craighead and R. A. St. George

During the summer of 1925 a determined effort was made to learn more of the activities of the southern pine beetle. Considerable experimental work was attempted in an effort to induce attack on certain trees, to learn something of the attractiveness of these attacked trees and to study the effects on brood development of various treatments of the trees after attack. These studies were conducted at a field laboratory established in cooperation with the Appalachian Forest Experiment Station at Asheville, N.C. Mr. R. A. St. George was directly in charge, assisted by Mr. A. H. MacAndrews. Mr. J. A. Beal assisted during September and the writer at intervals during the summer. Dr. E. J. Kraus gave much valuable help on physiological problems.

Although the results obtained are not at all conclusive, due to the limited amount of data which it was possible to collect and the necessity of confirming them in another season, they are very suggestive and tend to confirm previous theories.

Previous observations indicate that there is a decided correlation between the occurrence of epidemics of the southern pine beetle and drought periods. Fortunately for continuing observations on the relation an extreme drought prevailed between May and August.

Several local outbreaks developed during mid-season. Two of these, of some 50-100 trees each, were within a hundred yards of the experimental treatments and the laboratory site. It is significant that, on these plots, previous to any attack on the pines, the hardwoods withered and shed their foliage. Some of the shrubs such as alders are to all appearances dead. In each case species of Ips killed several of these trees before the southern pine beetle attacked the plots.

Between April 15 and October 15, 4 generations of the southern pine beetle were completed. During mid-season the development of a single generation required from 37-40 days. Considerable attention was given to determining the ratio between attacking beetles and emergence. An average of all counts indicates that about 35 beetles attack per square foot and approximately 300 emerge. Thus an increase of over 800% was shown and in many trees this exceeded a thousand percent. With such possibilities of multiplication, the phenomenal increase of this beetle during favorable seasons is not so difficult to understand. We learned little, however, as to where the beetles are breeding during intervals between epidemics. No endemic infestation in standing trees occurs and the beetles are rarely found in felled material or slash.

In an effort to induce attack, a series of trees was girdled by various methods and others felled throughout the season. Another series was scorched with a blow torch, a third treated with salt, but in no case were these trees attacked. Some overwintering beetles were found in logs cut the previous August. These trees had been defoliated by fire the preceding spring. Also one large tree which was felled near camp in mid-June was attacked. These are the only authentic records which we have of this beetle breeding in anything but standing trees.

To further study the effects of drought in inducing attack, a group of trees was selected on top of a knoll and a trench was dug around them. A tent was then erected about 4 feet above the ground which shed practically all the light rains during the summer. Late in the season during the height of the emergence from infested trees in the neighborhood, 3 of these trees were attacked - one was killed but on the other two the attack was unsuccessful. The selection of this plot is all the more significant since it occurred in mid-October after a month of normal rainfall and although millions of beetles emerged from surrounding trees no other green trees were attacked.

Large numbers of living beetles were caged on 5 trees representing various degrees of vigor. No attraction for outside beetles was produced except in the case of one tree on the drought plots.

Analysis and comparison of unattacked and attacked trees showed that at the time of attack the moisture content of the phloem and leaves was several percent lower than on the checks. The sap density of the phloem of drought plot trees was also considerably higher than checks. Moisture determinations of cross sections of the stem of infested trees indicated that above 5 feet the wood rapidly dried while the water content increased below. A dendrograph in operation during the summer showed a cessation in growth in late July and mid-August which period coincided with the concentrated attack in several groupd killings in the surrounding country.

Several attacked trees were decapitated just above the infested length immediately after attack and others were severely pruned removing all branches except the terminal whorls. Both these methods resulted in effective brood mortality and on adjacent unattacked trees which were severely pruned no attacks developed.

Considerable attention was paid to the development of blue stains on the attacked trees. There is an interesting field for further study on this phase of the problem. It is quite probable that a close symbiotic relation exists between the development of the beetles and these blue stains and, in fact, it is suggested that the mycelium of these fungi which rapidly penetrate the sapwood may be an important agent in quickly killing the tree. Trees girdled and bark-stripped to simulate barkbeetle girdling have as yet failed to succumb to the treatments.

INSECT KILLED TIMBER LOWERS LUMBER PRICES

According to consular reports, the damage done by caterpillars of the nun moth last spring in the forest districts of East Prussia, is estimated at 2,320,000,000 board feet. This has resulted in such large quantities of rough timber, mine timber and poles being offered for sale that prices have dropped. A local dealer estimates that it will take from two to three years to dispose of this insect killed material.

H.E.B.

WANTED: AN AUTOMATIC INCREMENT CORE MEASURING DEVICE.

On November 4, 1925, we received the following from J. C. Evenden of the Coeur d'Alene Station:

"I guess I was somewhat mistaken in the core measuring equipment at your Station. I was led to understand that all you had to do was to place a core in the machine, go home for lunch, and upon your return the measurements would be accurately tabulated. At this time we feel that we are some what on top in regard to increment core measuring machines. We have one now which though not automatic measures very accurately to one three-hundredths of an inch, which is just about as fine as we care to go. Should you receive our resignations you will know that we have secured a patent for this machine and are ready to supply them on demand. I would be glad to attempt a description but feel that it is really beyond words. However, it does the work and all that it cost was one old delapidated camera which I bought several years ago for $5.00 and, as well as I can remember, never paid for."

To set ourselves right with the general public and to inform those like Mr. Evenden who are interested in core measuring machines we present the following account of the machine now in use at the Palo Alto Station.

H.E.B.

* * * * * * * * * * * * * * * * * * *

The rapid growth of the increment core industry in the western field during the past two years has created the need for an instrument which will make the measurement of the cores as painless as possible. The production of increment cores increased from less than 1000 in 1924 to about 7000 in 1925. To make a series of accurate measurements for each of these cores means a lot of tedious work, and any improvement of method or device in their measurement will mean a big saving in time and effort.

Why all the cores? - is a fair question. They are being used in a number of ways but without going into the details of each study, they are used as an index to the vigor of the tree for any time or period and form the basis for determining the relation of this factor to probability of attack by the western pine beetle, general infestation increases, and climatic factors, especially precipitation. The preference of the western pine beetle for the slower growing trees, which is now practically proven, is one example of the use of these cores. The study of the interrelation of precipitation, growth rate of the trees and insect outbreaks is another. The cores are also used in the determination of increment on cut over areas where the insect loss is being studied.

The type of device desired depends on the measurements wanted. The measurements taken from most of the cores already measured include the width of the last five annual rings and the number of rings in the outer inch of the core.

The first device, which was copied with minor changes from one used by Dunning of the Forest Service, consisted of a wooden clamp slightly grooved on the top side to fit a core so that about one-sixth of the diameter of the core projected above the clamp. This projection was shaved off with a sharp knife to give a smooth surface and so increase the accuracy of the measurements. A steel rule with divisions to 1/100 of an inch was fastened to one side the clamp so that when the core was clamped in, the rule was tight against one side of the core. By using a binocular microscope for magnification a fair degree of accuracy was obtained.

When the 1925 core crop started pouring in, Dr. Craighead (probably fearing that the western men would spend all their time measuring cores) decided to improve the situation by getting two comparators, or micrometer slides. Roughly, this comparator consists of a steel frame about 5" x $2\frac{3}{4}$" with a sliding stage operated by a micrometer screw with a dial or micrometer head 2" in diameter at one end. On the circumference of this dial are graduations to 1/100 of a millimeter, making it possible to measure quite accurately to 1/1000 of a millimeter. By means of a friction screw it is possible to set the disc at zero for each measurement. To adapt this instrument to our use, Mr. Patterson had a brass clamp fitted to the sliding stage to hold the cores as the wooden clamp had done, allowing part of the core to project above the clamp for shaving off to produce a flat, smooth surface. The comparator was then fitted firmly to a binocular microscope stage by means of a lead frame, a single cross hair disc was put in one of the eye pieces and the machine was ready for operation. The core fastened to the sliding stage is moved passed the hair and the distance or ring width is recorded on the dial.

Although there is a little slack in the micrometer screw at the point of attachment with the stage, this can be taken up before starting the measurement of each core and as long as the core is moved in the same direction there is no play or lost motion and the measurements are as accurate as can be used in ring measurement. The poor definition of many of the rings and their uneveness limit the degree of accuracy more than any shortcomings in the comparator.

The only other core measuring device that we know anything of (we should say know nothing of) is one being used at the Coeur d'Alene station by Mr. Evenden. His information on the instrument is very meager - (He is probably afraid we will infringe on his patent) - but he is evidently using the rack and pinion of an old camera to slide his core across the field of a binocular instead of the comparator that this station is using. He claims he can make measurements accurate to 1/300 of an inch which is accurate enough for most core measurements. His device has the advantage of cheapness, especially if we could get cameras the way Evenden does.

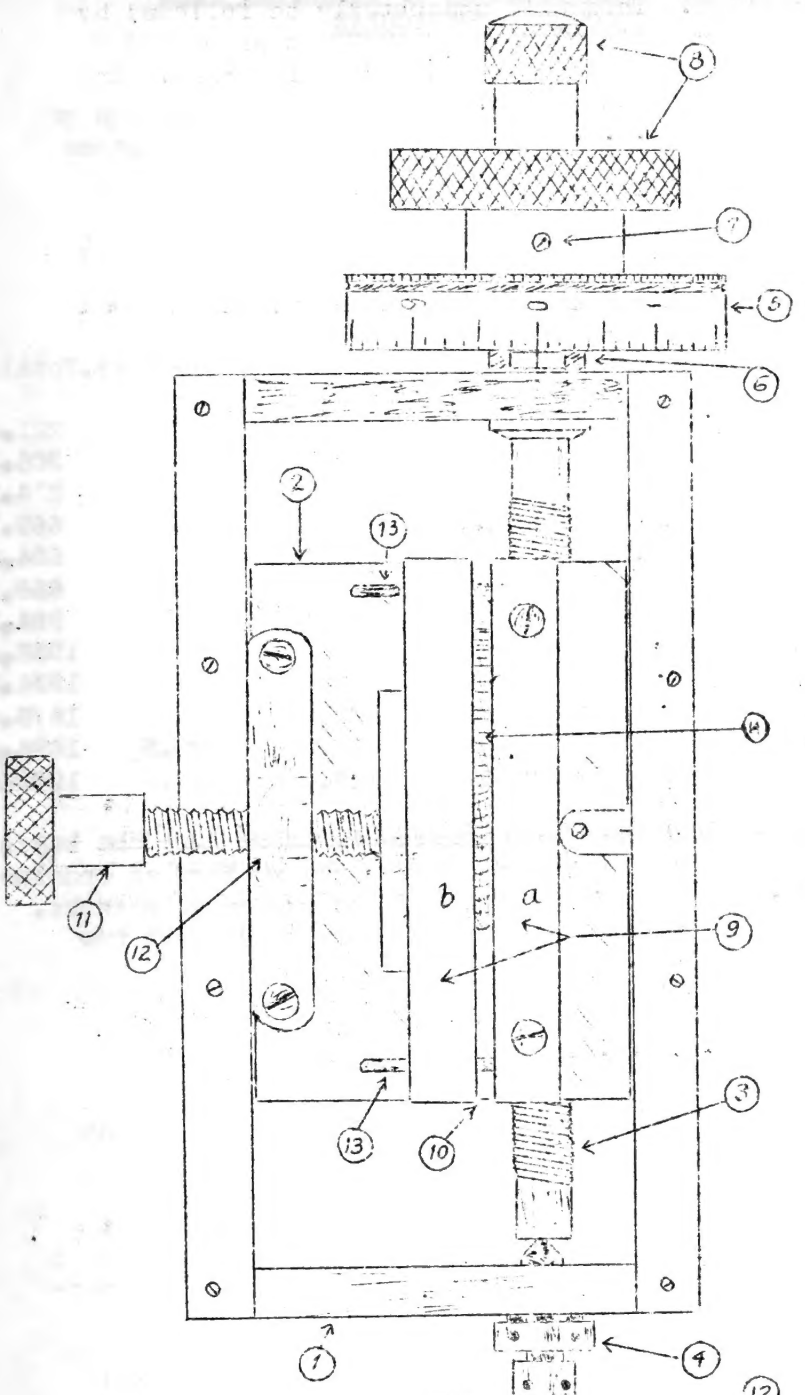
H.L.P.

<u>The Hemlock Looper in Northern Wisconsin.</u>

Dr. S. B. Fracker informs me that the Wisconsin State Department of Entomology is contemplating dusting several hundred acres of hemlock in Northern Wisconsin to attempt to control the Hemlock looper. This work will be done next spring using an airplane.

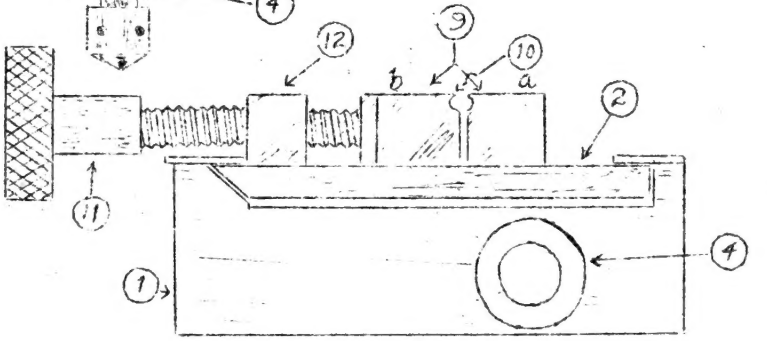
W.J.C.

INCREMENT CORE COMPARATOR



EXPLANATION OF PARTS

1 - Base of instrument.
2 - Sliding stage.
3 - Micrometer screw.
4 - Thrust pin and lock.
5 - Micrometer head for recording shift of stage, vernier engraved in 1/100 m/m.
6 - Position indicator.
7 - Friction screw.
8 - Knurled discs for turning micrometer screw.
9 - Jaw clamps for holding increment cores:
a - stationary member,
b - sliding member.
10 - Grove for increment core,
11 - Jaw clamping screw.
12 - Stationary screw nut.
13 - Guides for jaws.
14 - Increment core in position for measurment.



JE Patterson
Jan 22-1926

RELATIONSHIP EXISTING BETWEEN DIAMETER CLASS OF LODGEPOLE PINE AND ATTACKS BY DENDROCTONUS MONTICOLAE

The following table gives an idea of the number and distribution of the mountain pine beetles which attack the lodgepole pine in western Montana under epidemic conditions:

E. FORK-BITTERROOT- 1925

Number of attack for each ten-foot length of bole.

D.B.H.	1-10 ft.	10-20 ft.	20-30 ft.	30-40 ft.	40-50 ft.	50-60 ft.	60-70 ft.	Totals
7 in.	123.3	73.3	25.0					221.6
8 in.	182.5	78.8	35.0	10.0				306.3
9 in.	153.3	47.7	13.2					214.2
10 in.	256.7	200.0	131.7	66.7	14.0			669.1
11 in.	341.5	168.6	76.4	17.8				604.3
12 in.	284.4	188.7	122.5	41.9	20.6			658.1
13 in.	375.8	246.7	220.0	112.5	29.1			984.1
14 in.	388.8	288.4	167.5	132.5	58.3			1035.5
15 in.	401.6	322.5	247.6	183.3	110.9	68.3		1334.2
16 in.	549.3	376.4	304.3	240.0	150.0	55.0		1675.0
17 in.	475.0	381.6	306.7	256.3	156.6	96.7	23.3	1696.6
18 in.	615.0	375.0	330.0	252.5	245.0	117.5	37.5	1972.5

Attack counts at five-foot intervals on sixty-six trees form the basis of this table. It is realized that this number is inadequate to furnish conclusive evidence, but the above data may give some idea of the number of attacks.

By an attack is meant an entrance gallery, usually containing two insects.

A.L.G.

ANOTHER COUNTY HEARD FROM.

Not to be outdone by Los Angeles and San Bernardino Counties, San Diego has come to the front with a forest insect problem.

A recent call for help from summer home owners on the Cleveland National Forest, whose prize pine trees were showing symptoms of "internal worms", was answered by Keen while on annual leave at San Diego. Accompanied by Mr. Elliott, the Forest Supervisor, who generously furnished the transportation, the rounds of the summer resorts was made.

A few small Jeffrey pines on the Laguna Mountains were found to be dying thru the work of a flathead borer (probably Melanophila californica) while on the Cuyamaca range small groups of Coulter pine were dying from the work of the western pine beetle. Advice was given to the owners as to what could be done to stop the destruction. This will undoubtedly be followed by prompt action on their part, since probably nowhere in the western United States are forest trees valued more highly than in Southern California. And Southern Californians are noted for getting action.

F.P.K.

INCREASED INTEREST IN FOREST ENTOMOLOGY AT O. A. C.

The greatest number of students ever enrolled in a single quarter are now taking Advanced Forest Entomology at the Oregon Agricultural College. Thirteen men are registered in this course, four of these are majoring in General Entomology, three in Forest Entomology, and six are forestry students who are taking work in Forest Entomology as elective credits.

W.J. C.

Western Pine Beetle Survey of Washington and Oregon

A western pine beetle survey of the privately-owned and government-owned western yellow pine in Oregon and Washington was begun by the writer in 1923. Rough data are now available for about three-fourths of the 90 billion board feet of yellow pine in Oregon and Washington. The information will be worked up into a report this winter. It was found that the yellow pine stands can be divided into three classes, namely:-

1. Those which are chronically susceptible to western pine beetle epidemics.
2. Those which suffer only at considerable intervals to heavy western pine beetle losses.
3. Those which have been apparently free from heavy damage for a long time and are still free of epidemic losses.

Classification of the yellow pine in the above manner is of value in determining what stands are in special need of careful watching and what stands, other things being equal, should be considered first in deciding upon a cutting program.

A.J.J.

GALLERY CONSTRUCTION OF D. MONTICOLAE IN LODGEPOLE PINE.

The possibility of determining the date of attack by the length of the egg gallery seems hardly possible, from the data secured this summer on the east fork of the Bitterroot, in Montana. Individuals in the same tree and broods in different trees were found to work at widely varying rates. The slowest brood averaged only one-half the speed of the fastest and the individual difference was much greater. The fastest construction was done during the first five days, gradually decreasing, and averaging for the first 48 days .25" daily. During the first five days the average was .47" daily.

J.C.E.

AN EXPERIMENT IN ARTIFICIAL INFESTATION

Mr. Edmonston reports an interesting method of inducing attack of the Black Hills beetle which consists of collecting adult beetles and merely placing them in crevices of the bark of living trees. They immediately begin to bore in and the resulting pitch flow serves as an attraction for other individuals. On July 19, 80 beetles were placed on a tree 10" D.B.H. and by August 8 it was thoroughly infested from top to bottom. This tree was more heavily infested than the average of 10" trees during epidemic periods. On July 31, 175 adults were placed on an 11" tree. On August 1, boring dust was observed and within a few days subsequent attacks followed resulting in the death of the tree.

Mr. Edmonston comments that these experiments further substantiate the general impression gained by those who have been studying the Black Hills beetle - that it shows little discrimination as to the character of trees which it attacks and that once an attack has begun the exudation of pitch forms an attraction concentrating other beetles on the tree. This method should be further tested next season and it may give us much information as to any discrimination which the insects may show in selecting individual trees and information as to the length of flight.

F.C.C.

Spraying of Lodgepole

During the period 1922-1925 inclusive, large volumes of lodgepole have been killed by the mountain pine beetle on the shores of Diamond Lake and Elk Lake in southern and central Oregon. Some of the killed lodgepole are on summer home and hotel sites leased by the Forest Service. The lessees are anxious to prevent further inroads on their trees, and are willing to spend considerable money for such protection. The feasibility of spraying lodgepole trees of special value to prevent their attack by the mountain pine beetle will probably be placed before the Bureau for its decision very soon. The use of the creosote-kerosene mixture may prove of value. Volck, an oil spray for scale insects manufactured by the California Spray-Chemical Company of Watsonville, California, has been suggested by Mr. Patterson as worthy of trial as a deterrent against beetle attacks.

This is a special insect problem which the Bureau and the Forest Service will undoubtedly have to meet with constantly increasing frequency in recreation areas everywhere in the West.

A.J.J.

Egg Laying Habits of Mountain Pine Beetle.

D. monticolae attacking a lodgepole pine on the night of July 28, 1925, started to lay eggs before 3 p.m. July 30. An examination of ten galleries at that time showed three beetles had deposited eggs, in two cases in the first $\frac{1}{4}$" of gallery.

J.C.E.

MORE ON THE BLACK HILLS GIRDLING

In a memorandum submitted to Dr. Craighead on January 2, Mr. J.L. Webb, who conducted the original girdling experiments to determine their attractive influence on the Black Hills beetle, has this to say, "I am under the impression that Mr. Burke must have made a mistake in stating that some of the treated trees were alive in 1908. I revisited the area where the experiments were conducted in the summer of 1906, and as I recall it, all of the treated trees were dead at that time."

"On the general conclusion, that girdled trees do not especially attract Dendroctonus ponderosae I quite agree. Some of these treated trees were attacked by this species but there was an equal number, if not a greater number of perfectly healthy trees immediately adjoining which were also attacked. Furthermore, the impression which I gathered from the summer's work in the Black Hills was that the Black Hills beetles select the most healthy trees for attack."

The notes show that Mr. Webb is correct about the trees being dead in 1908. The last visit Burke made to the area was in November 1904. At that time, two years after the girdling, some of the girdled trees were still alive.

H.E.B.

PROGRESS OF BREVICOMIS INFESTATIONS IN SOUTHERN OREGON

Estimates of brevicomis damage in 2,500,000 acres of yellow pine in Klamath and Lake counties of southern Oregon outside of the project area are as follows:-

1921	40 million board feet.
1922	41 million board feet.
1923	50 million board feet.
1924	80 million board feet.
1925	60 million board feet.

The yellow pine stand is estimated at 18 billion board feet. The loss figures are based on four annual surveys. The 1924 figure was stated in the December 1, 1925, issue of the News Letter as being "in excess of 70 million board feet." The compilation of the field data since then has resulted in the change of the 1924 estimate to 80 million board feet.

One-third of the 271 million board feet of yellow pine killed in the five-year period is concentrated on less than four per cent of the survey area.

A.J.J.

FIRE PROTECTION LOSES TO FOREST PROTECTION

To conform with the provisions of the new Idaho forestry law, the North Idaho Forestry Association has recently completed a revised consittution which has been adopted by the Timber Protective Association members. In this revised and uniform constitution the term FIRE PROTECTION has been changed to FOREST PROTECTION and now calls for the prevention, detection, and suppression of fires, outbreaks of insects and disease, as well as the prevention of wilful, malicious, and careless destruction.

J.C.E.

BARK ANALYSIS RECORDS FROM NORTHERN IDAHO

In tabulating the data secured from an analysis of bark taken from western yellow pine attacked by the western pine beetle some interesting averages were obtained. Most of these trees were also subject to an associate attack by Ips integer, Ips oregoni and Acanthocinus spectabilis, resulting in considerable destruction to the Dendroctonus egg galleries which no doubt caused a heavy mortality in some trees.

Bark examined on May 11, 1923, showed that from 95 to 99% of the broods were in the pupae stage with no emergence or new adults. The number of pupae varied from 297 to 361 per square foot of bark. Predacious largae, Trogositidae and Cleridae, were present and varied in numbers from 8 to 16 per square foot.

Fourteen square feet of bark from a tree 28" D.B.H. taken from all exposures and from 3 to 17 feet from ground gave a general average of 307 emergence holes per square foot. The maximum emergence (512) took place on the north exposure at nine feet, and the minimum (74) on an east exposure at sixteen feet.

A small amount of bark examined from slash attacked by the summer generation gave an average emergence of 239 beetles and ten (10) lineal feet of egg gallery per square foot.

The highest average obtained was from a tree 21" D.B.H. attacked during the summer of 1925. The greatest number of larvae were taken from the west side of the tree where 775 larvae per square foot were secured. The general average for this tree was 504 larvae and 16.6 lineal feet of egg gallery per square foot. Average length of egg gallery 16.6 ft. Very few predacious larvae were found in this bark.

The following data was secured from a tree 20" D.B.H. growing on an open rocky ridge at an elevation of 2300'. This tree was top killed by Ips oregoni during the spring of 1925, while the Dendroctonus attack, on the lower portion of the bole occurred later in the season. The bark was very thin and in some portions there had been a very heavy secondary attack by A. spectablis largae.

TABLE OF BARK ANALYSIS RECORDS FROM ONE TREE

Height from Ground	Length of Egg Galleries N.	E.	S.	W.	D.brevicomis Larvae N.	E.	S	W.	Predacious** Larvae N:	E.	S.	W.
3'			12'-3"	5'-8"			73:	52	:		11:	9
4'	*	*	8'-4"	9'-4"	134	137	97:	127	8:	7	4:	13
5'	*	*	8'-3"	7'-4"	110	113	94:	93	3:	5	6:	8
10'	11'-1"	9'-4"	6'-8"	6'-2"	85	141	82:	68	5:	2	2:	6
11'	9'-1"	8'-5"	6'-7"	8'-2"	150	84	88:	62	6:	2	3:	2
16'	8'-9"	6'-5"	8'-3"	*	180	160	71:	62	5:	8	3:	5
17'	8'-6"	4'-9"	7'-6"	4'-2"	178	108	137:	89	13:	3	1:	5
22'	8'-7"	*	*		148	62	4:		7:	6	1:	
23'	10'-6"	*	*		63	63	29:		7:	6	3:	
					1068	888	675:	553	54:	39	34:	49
General average per sq. ft.						99.5				5.5		
Total for infested portion of tree (23')						11940				660		

* Galleries destroyed by Acanthocinus spectabilis larvae

** Trogositidae and Cleridae

This table shows that the heaviest infestation was present on the east exposures up to a height of 10 feet. At 11 feet it was found to be on the north and maintained this position to the height of the attack.

The largest number of predacious larvae were also found on the north exposure. The west exposure having the next greatest number showed the least Dendroctonus larvae.

W.J.R.

ATTENDS WESTERN FORESTRY MEETING

Mr. Evenden presented a paper on the status of the Forest Insect Situation on the Pacific Coast at the annual meeting of the Western Forestry and Conservation Association, which was held at Victoria, B.C., on December 9th and 10th.

Mr. Evenden writes as follows:-

"This was a very interesting and profitable meeting. The program was well arranged and covered some very interesting forestry topics. It is indeed gratifying to note the increased interest displayed by lumbermen and timber owners towards forest insect depredations. This increase of attention was very noticeable this season and I am sure that it is due to a large extent, to our participation in the programs of these meetings. Mr. Hopping, Forest Entomologist of British Columbia, was present at this meeting and I was fortunate in being able to spend considerable time with him. Mr. Hopping is as enthusiastic as ever over the possibilities of forest insect control and it is indeed a pleasure to visit with him."

J.C.E.

HAPPENINGS OF INTEREST

Mr. R. D. Hartman, formerly of the Palo Alto Laboratory, and for the last two years Superintendent of Nursery Service for the California State Department of Agriculture, resigned December 1st to go into the nursery business. Hartman is located at San Jose, Calif. His firm specializes in ornamental trees and shrubs and landscape work. Hartman still has the same smile but the poundage behind it is not so great.

- - - - - -

Mr. Gibson left Coeur d'Alene on December 30th for a three month's detail at the University of Minnesota, under the supervision of Dr. S.A. Graham. While at the University, Mr. Gibson will register for graduate work.

The data secured by the investigative study of the mountain pine beetle infestation in the lodgepole pine stands of Montana, have been fairly well tabulated and Mr. Gibson plans on preparing a progress report during his detail in Minnesota. This report will be far from complete as the results plainly show that more data is needed.

- - - - - -

During the period December 8 to 20, Mr. H.L. Person of the Palo Alto Laboratory made a trip to the San Bernardino project. The Forest Service and private owners were at that time starting winter control operations. Ranger Funke had a small crew at work on National Forest lands and the Lakeview Forest and Arrowhead Lake Company were also cleaning up their holdings. Person reports that conditions were too dry at that time for burning which made it necessary to carry on the work with special care.

- - - - - -

U. S. TREASURY RUNS DRY!!

"Federal funds are so depleted that privately owned concerns are seriously debating the advisability of taking the work over themselves to control the havoc wrecked by the black beetles in the pine forests" states a clipping from the Klamath News of January 22nd in reporting a conference recently held at the office of Jack Kimball between the representatives of the large timber interests owning 175,000 acres of pine west of Klamath Falls. Those present were C.S. Chapman of Tacoma, representing Weyerhaeuser interests; Capt. Woods, Longview representing the Long-Bell Lumber Company; Charles King of Tennant, forester for the Long Bell Company and Jack Kimball representing the Klamath Forest Protective Association. These owners are considering the continuation of pine beetle control on their timberlands in southern Oregon.

CURRENT LITERATURE.

Beeson, C.F.C.- The Deodar Defoliator (Ectropis sp. nov.). The Indian Forester, Nov. 1925. An account of the life history and outbreaks of a Geometrid which defoliates the deodar forests of the Simla Hills States, India.

Felt, E. P. - Evergreen Span Worm, (Nephytia contracta Walk). Jour. Econ. Ent., Oct. 1925, pp. 752. Note on the defoliation of hemlocks by the caterpillars of this species which cause many of the branches to turn up and inward.

Fracker, S.B. - Hemlocks Attacked by a Little-known Geometrid. Jour. Econ. Ento., Dec. 1925, pp. 837. Note on an outbreak of Ellopia fiscellaria Gn. on hemlocks and other trees in Wisconsin. If the outbreak continues in 1926, airplane dusting is planned.

Hadley, E.W. - The use of Kerosene Emulsion in Control of the Scale Toumeyella sp. on Loblolly Pine. Jour. Econ. Ento., Oct. 1925, pp. 749-751. An account of the results of some experiments with kerosene emulsion used to control scale infestations on pine seedlings in the nursery of the Great Southern Lumber Company at Bogalusa, La.

Hopping, Ralph - Relation between Abnormality and Insect Attacks in Western Yellow and Jeffrey Pine Stands. Jour. of Forestry, Nov. 1925, pp.932-935, tables I-VII. Data on 624 yellow pine killed by Dendroctonus brevicomis and on 1032 Jeffrey pine killed by Dendroctonus Jeffreyi from the Lassen National Forest, Calif. This data indicates that mistletoe and fungus decay does not make the trees more apt to be attacked by insects.

Swaine, J. M - The factors Determining the Distribution of North American Bark-Beetles. Can. Ent., Nov. 1925. pp. 261-266. A discussion of the factors which influence the distribution of barkbeetles, especially those belonging to the Genus Dendroctonus.

Snyder, Thomas E. - Communism Among Insects. Sci. Monthly, Nov. 1925. A good general illustrated account of the habits, food, economic importance and control of Termites.

Notes on Fossil Termites with Particular Reference to Florissant, Colorado. Proc. Biol. Soc. Wash., Nov. 13, 1925, pp. 149-165. An interesting account of fossil Termites with an extended bibliography.

Walther, Eric - The Pine Needle Mite, a New Enemy of the Pines, Eriophyes pini Nalepa. Jour. Econ. Ento., Dec. 1925, pp. 830-836. An account of the habits, damage and control of this species of mite in the Monterey pine forests of Golden Gate Park, San Francisco, Calif.

REPORTS.

Burke, H.E.- Forest Insect Conditions in the Yellowstone National Park During the Season of 1925.

Keen, F. P.- Pine Beetle Control in Southern Oregon and Northern California. Results of the control work carried on from 1922-1924. Submitted to the Secretary for approval for publication.

Southern Oregon- Northern California Pine Beetle Control Project. Accomplishments, Present Conditions and Future Plans.

Miller, J.M. & Person, H.L. - Insects Affecting Forest Recreational Areas in Southern California. A mimeographed circular of information on the Dendroctonus, Ips, Engraver beetles, and flatheaded borers attacking conifers on summer home sites.

Miller, J.M. & McCleary, T. D. - Annual Insect Control Report for District 5, Season of 1925. Summary of 85 reports submitted by rangers. A review of surveys, control projects, and plans for 1926, and estimates for 1927.

Patterson, J.E. - Report of the 1925 Control Work in the Crater Lake National Park, Oregon.

Person, H.L. - Preliminary Report on Proposed San Bernardino Insect Control Project.

WILL THEY MISS US WHEN WE'RE GONE?

No issue of this News Letter appeared for January. So far no one on our mailing list has threatened to cancel his subscription because of this failure of the editorial staff to function.

In the way of alibis we wish to explain that, with the exception of Evenden, nobody contributed anything for the January issue. Also we had no mimeograph paper on which to print articles even if they had been forthcoming. To add to our difficulties the Editor had the "flu" and most of the station force was away on vacation.

This is a good time to point out the fact that contributed articles and news notes are essentially the grist upon which this mill grinds. We can assure you that if at any time in the future we fail to receive enough material for an issue of the News Letter, no issue will appear. This ought to convince you that the paper depends as much upon the readers on the mailing list as it does on the Editor.

Editor.

- - - - -

"Tomorrow's a Myth, Today is a Fact, Get Busy Forthwith, ACT, MAN, ACT!"